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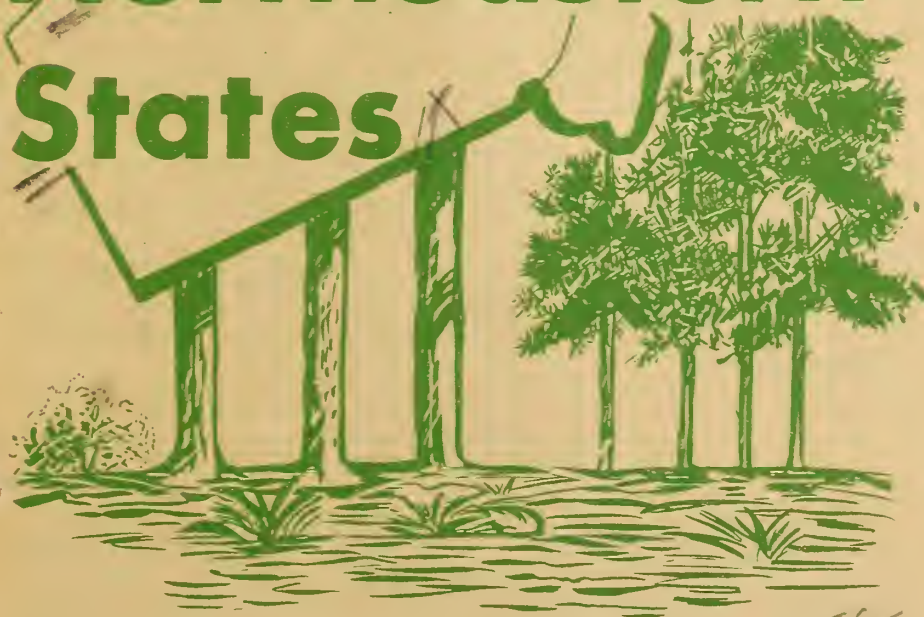


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# Control of White Pine Blister Rust



## in the Northeastern States



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White pine trees are a valuable natural resource in the Northeastern States. Since colonial times they have contributed to the economic and social development of the region.

The mature pines now have an estimated stumpage value of more than 150 million dollars. The younger pines, when mature, will probably be valued at nearly 550 million dollars.

White pine timber is highly rated for manufacturing. Soft, even textured, and durable, it is preferred to other softwoods for construction, pattern-making, carving, and framing, and for making boxes, toys, and matches.

In parks, along roadsides, and around homes, white pines add beauty to the landscape and increase property values. In summer resorts and winter sports areas, they provide an attractive setting for recreation and rest.

White pines provide shelter for various forms of wildlife. Their strong root systems also help to prevent soil erosion.

But during the past 30 years, a fungus disease known as blister rust has caused losses of nearly 6-3/4 billion board-feet of white pine timber with a lumber value of over 180 million dollars. White pines of equal value have been saved as a result of protective work.

## BLISTER RUST

The fungus causing white pine blister rust is known scientifically as Cronartium ribicola. It came into the Northeastern States around 1900 on nursery stock imported from Europe.



Besides infecting white pines, the fungus also infects currant and gooseberry bushes, which are called ribes (rye'bees). By means of windborne seedlike bodies called spores, the disease spreads from pine to ribes, from ribes to ribes, and from ribes to pine.

The fungus cannot spread directly from one pine tree to another.

### HOW IT KILLS WHITE PINES

The spores enter a white pine tree through the needles. The fungus develops slowly in the bark of the branches and in time, reaches the trunk. In 2 or 3 years it forms orange-colored blisters, which push through the diseased bark.

The blisters burst. When this happens, thousands of spores are released, some of which infect ribes.



The fungus in the diseased pine continues to grow in the live bark. New blisters form each year. The tree dies when the trunk is girdled.

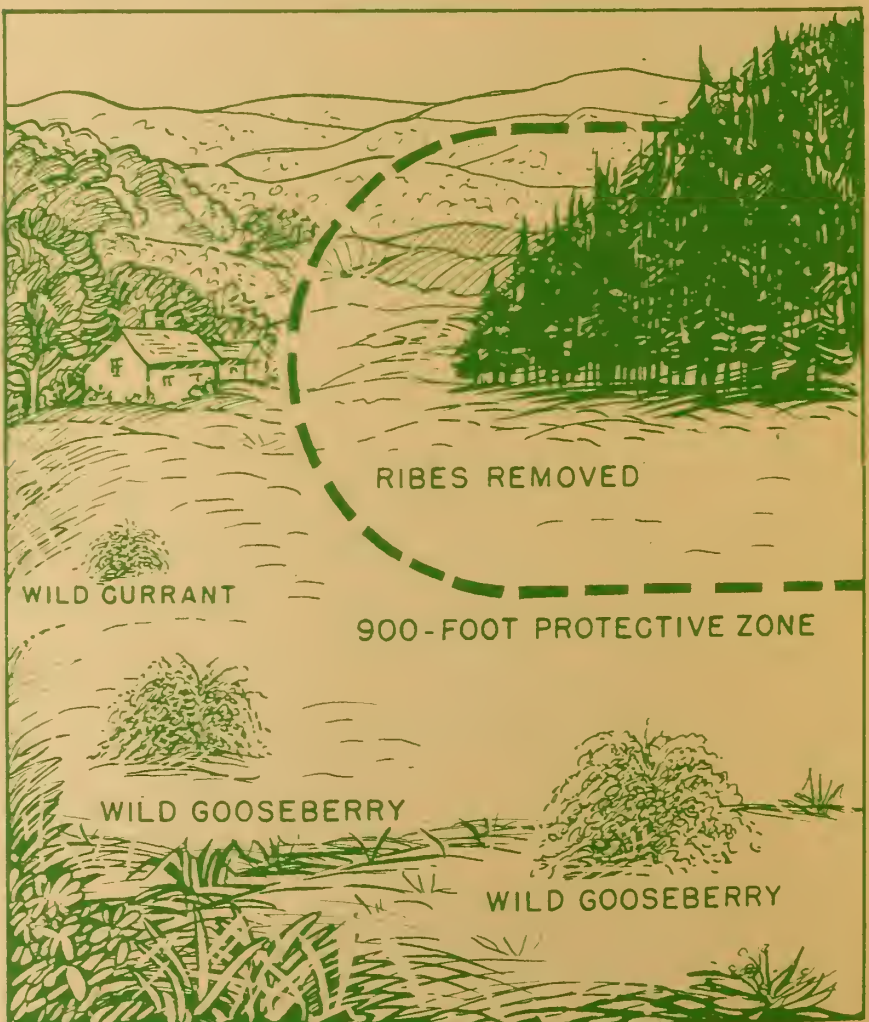
Small pines are killed within a few years; large trees in 20 years or more.

## CONTROL

Blister rust can be controlled by destroying ribes. Without these bushes, the disease cannot spread.

Removing ribes bushes is a technical job. It requires the services of trained persons. The general procedure followed is:

(1) Setting up the control area. The pine area and a surrounding protection zone are mapped. The width of the zone ranges from 300 feet in dense



forest growth or brush to 900 feet in open areas.

(2) Looking for ribes. Trained men, working singly or in groups of two to four, search the control area (pine and protection zone) for ribes. In addition to several kinds of ribes grown for fruit or as ornamental shrubs, there are several wild species in the Northeastern States. They grow most abundantly in moist places; in openings in the forests; along stone-walls, fences, and brushy roadsides; and in cutover lands, burned areas, and pastures.

(3) Destroying ribes. The ribes bushes are uprooted by hand or killed by chemicals such as 2, 4, 5-T. The roots must be destroyed to prevent sprouting.

One thorough working may control blister rust for many years. But where ribes are very numerous, some of them particularly small ones, may be overlooked. Such areas must be reworked in about 5 years.

Logging operations, wind-throw, and fires favor the germination of ribes seeds still underground. Affected portions of the control area must be inspected for new ribes plants 2 or 3 years after disturbances occur.

## COOPERATIVE EFFORT

A program for the eradication of ribes has been carried on cooperatively by Federal, State, local, and private agencies and by individuals since 1922. The aim is to control blister rust on approximately 11 million acres of land,



designated as the total control area in the Northeastern States. Full control has been achieved on 6-3/4 million acres and partial control on more than 3-1/2 million acres.

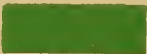
Since the program started, more than 315 million wild and cultivated ribes have been destroyed. Millions of white pines have been saved.

### WHAT REMAINS TO BE DONE

Much remains to be done to insure more adequate protection of the white pine resources of the Northeastern States. This means that:

#### Status of Blister Rust Control



	COMPLETE CONTROL	63.0 %
	PARTIAL CONTROL	33.6 %
	NO CONTROL	3.4 %



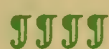
(1) Control measures must be initiated on about 400,000 acres of the control area.

(2) Additional work is necessary on the 3-1/2 million acres now under partial control.

(3) Control should be maintained by inspections every 5 to 10 years to locate and destroy any menacing regrowth of ribes.

### YOU CAN HELP!

- § DO NOT plant white pines until nearby wild and cultivated ribes bushes have been destroyed.
- § DO NOT plant ribes in gardens or lawns near valuable white pines.
- § COOPERATE in the blister rust control program in your community.
- § CONSULT your State department of conservation, forestry, or agriculture, State agricultural experiment station, county agricultural agent, or the blister rust control project for further information.



This publication was prepared by C. C. Perry, White Pine Blister Rust Control Project (headquarters in Greenfield, Mass.), Bureau of Entomology and Plant Quarantine.

Bureau of Entomology  
and Plant Quarantine  
Agricultural Research Administration  
U. S. Department of Agriculture

BLISTER RUST CANNOT SPREAD DIRECTLY FROM PINE TO PINE

FROM DISEASED  
PINES TO RIBES

FROM RIBES  
TO PINES

FROM RIBES TO RIBES

